

## Ֆիզիկայի գիտահետազոտական ինստիտուտ

Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա  
Լաբորատորիայի վարիչ

## Լեզուների իմացություն

English Русский

## Հրատարակումներ

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### **Topographically-guided van der Waals epitaxy: Selective growth of AlN nanowalls on h-BN step edges**

Albert M. Dautov, Vladimir G. Dubrovskii, Talgat Shugabaev, Vera V. Lendyashova, Konstantin P. Kotlyar, Alexey Kuznetsov, Prokhor A. Alekseev, Mikhail E. Popov, Igor V. Shtrom, Adilet Toksumakov, Davit Ghazaryan, Alesya V. Parfeneva, Aleksey V. Arsenin, Alexey D. Bolshakov, George E. Cirilin, Vladislav O. Gridchin  
Materials Science in Semiconductor Processing 2026 110293

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### **Inelastic resonant tunnelling through adjacent localised electronic states in van der Waals heterostructures**

E. E. Vdovin, K. Kapralov, Yu. N. Khanin, A. Margaryan, K. Watanabe, T. Taniguchi, C. Yang, S. V. Morozov, D. A. Svintsov, K. S. Novoselov, D. A. Ghazaryan  
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### **Artificial intelligence guided search for van der Waals materials with high optical anisotropy**

Liudmila A. Bereznikova, Ivan A. Kruglov, Georgy A. Ermolaev, Ivan Trofimov, Congwei Xie, Arslan Mazitov, Gleb Tselikov, Anton Minnekhanov, Alexey P. Tsapenko, Maxim Povolotsky, Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov, Kostya S. Novoselov  
Materials Horizons 2025 1953 - 1961

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### **Optical Properties of Biaxial van der Waals Crystals for Photonic Applications**

A. Slavich, G. Ermolaev, I. Zavidovskiy, D. Grudinin, M. Tatmyshevskiy, A. Toksumakov, A. Syuy, A. Vyshnevyy, D. Yakubovsky, S. Novikov, D. Ghazaryan, A. Arsenin, V. Volkov  
Bulletin of the Russian Academy of Sciences: Physics 2025 S433 - S438

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### **In-Plane Directional MoS<sub>2</sub> Emitter Employing Dielectric Nanowire Cavity**

Alexey Kuznetsov, Maria Aleksandrovna Anikina, Adilet Nurlanbekovich Toksumakov, Artem Nikolaevich Abramov, Vyacheslav Vsevolodovich Dremov, Eseniya Zavyalova, Valeriy Mikhailovich Kondratev, Vladimir Victorovich Federov, Ivan Sergeevich Mukhin, Vasily Kravtsov,

Kostya Sergeevich Novoselov, Aleksey Vladimirovich Arsenin, Valentyn Sergeevich Volkov,  
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Small Structures 2025 2400476

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Saroj Poudyal, Prahalad Kanti Barman, Rabindra Biswas, Konstantin Kravtsov, Bubunu Biswal,  
Renu Yadav, Varun Raghunathan, Ivan Kruglov, Davit A. Ghazaryan, Abhishek Misra  
Advanced Optical Materials 2025 2403265

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**Germanium disulfide as an alternative high refractive index and transparent material for UV-visible nanophotonics**

Aleksandr S. Slavich, Georgy A. Ermolaev, Ilya A. Zavidovskiy, Dmitriy V. Grudinin,  
Konstantin V. Kravtsov, Mikhail K. Tatmyshevskiy, Mikhail S. Mironov, Adilet N. Toksumakov,  
Gleb I. Tselikov, Ilia M. Fradkin, Kirill V. Voronin, Maksim R. Povolotskiy, Olga G. Matveeva,  
Alexander V. Syuy, Dmitry I. Yakubovsky, Dmitry M. Tsybarenko, Ivan Kruglov, Davit A. Ghazaryan,  
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M. Zhezhu, A. Vasil'ev, H. Parsamyan, T. Abrahamyan, G. Baghdasaryan, S. Gyoalyan, D. Ghazaryan,  
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Results in Physics 2025 108351

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**Chemical vapor deposition synthesis of (GeTe)<sub>n</sub>(Sb<sub>2</sub>Te<sub>3</sub>) gradient crystalline films as promising planar heterostructures**

M. Zhezhu, A. Vasil'ev, M. Yapryntsev, E. Ghalumyan, D.A. Ghazaryan, H. Gharagulyan  
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A. Vasil'ev, M. Zhezhu, H. Parsamyan, G. Baghdasaryan, M. Sargsyan, D.A. Ghazaryan, H. Gharagulyan  
Optics and Laser Technology 2025 113628

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Albert Dautov, Talgat Shugabaev, Alexey Kuznetsov, Konstantin Kotlyar, Davit Ghazaryan,  
Adilet Toksumakov, Alexey Bolshakov, Alesya Parfeneva, George Cirlin, Vladislav Gridchin  
International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices, EDM  
2025 100-103

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**Probing the features of electron dispersion by tunneling between slightly twisted bilayer graphene sheets**

Alexey A. Sokolik, Azat F. Aminov, Evgenii E. Vdovin, Yurii N. Khanin, Mikhail A. Kashchenko,

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**E-beam induced micropattern generation and amorphization of L-cysteine-functionalized graphene oxide nano-composites**

Y. Melikyan, H. Gharagulyan, A. Vasil'ev, V. Hayrapetyan, M. Zhezhu, A. Simonyan, D.A. Ghazaryan, M.S. Torosyan, A. kharatyan, J. Michalicka, M. Yerosyan  
Colloids and Interface Science Communications 2024 100766-7

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Aleksandr S Slavich, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Adilet N Toksumakov, Olga G Matveeva, Dmitriy V Grudin, Kirill V Voronin, Arslan Mazitov, Konstantin V Kravtsov, Alexander V Syuy, Dmitry M Tsymbarenko, Mikhail S Mironov, Sergey M Novikov, Ivan Kruglov, Davit A Ghazaryan, Andrey A Vyshnevyy, Aleksey V Arsenin, Valentyn S Volkov, Kostya S Novoselov  
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Nature Communications 2024 1552

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Laser and Photonics Reviews 2024 2301113

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Kirill V. Voronin, Georgy A. Ermolaev, Maria G. Burdanova, Aleksandr S. Slavich, Adilet N. Toksumakov, Dmitry I. Yakubovsky, Maksim I. Paukov, Ying Xie, Liu Qian, Daria S. Kopylova, Dmitry V. Krasnikov, Davit A. Ghazaryan, Denis G. Baranov, Alexander I. Chernov, Albert G. Nasibulin, Jin Zhang, Aleksey V. Arsenin, Valentyn Volkov

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**Polarization control of lasing from few-layer MoTe<sub>2</sub> coupled with the optical metasurface supporting quasi-trapped modes**

A. V. Prokhorov, A. N. Toksumakov, A. V. Shesterikov, F. M. Maksimov, M. K. Tatmyshevskiy, M. Yu. Gubin, R. V. Kirtaev, E. I. Titova, D. I. Yakubovsky, E. S. Zhukova, V. V. Burdin, S. M. Novikov, A. I. Chernov, D. A. Ghazaryan, A. V. Arsenin, V. S. Volkov

Applied Physics Letters 2024 041702

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A. Vasil'ev, Y. Melikyan, M. Zhezhu, V. Hayrapetyan, M.S. Torosyan, D.A. Ghazaryan, M. Yerosyan, H. Gharagulyan

Materials Research Bulletin 2024 113036

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H. Gharagulyan, Y. Melikyan, V. Hayrapetyan, Kh. Kirakosyan, D.A. Ghazaryan, M. Yerosyan

Materials Science and Engineering: B 2023 116564

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Diamond and Related Materials 2023 110362

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Bulletin of the Russian Academy of Sciences: Physics 2023 S453-S457

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Adilet N Toksumakov, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Yuri A Klishin, Aleksandr S Slavich, Ilya V Begichev, Dusan Stosic, Dmitry I Yakubovsky, Dmitry G Kvashnin, Andrey A Vyshnevyy, Aleksey V Arsenin, Valentyn S Volkov, Davit A. Ghazaryan

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Optica 2023 53-61

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MA Anikina, A Kuznetsov, AN Toksumakov, VV Dremov, DA Ghazaryan, VV Fedorov, AV Arsenin, VS Volkov, AD Bolshakov  
St. Petersburg State Polytechnical University Journal: Physics and Mathematics 2023 3.2

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Mohammad Talib, Samrah Manzoor, Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov, Prabhash Mishra  
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Adilet N. Toksumakov, Georgy A. Ermolaev, Aleksandr S. Slavich, Natalia V. Doroshina,, Ekaterina V. Sukhanova, Dmitry I. Yakubovsky, Alexander V. Syuy, Sergey M. Novikov,, Roman I. Romanov, Andrey M. Markeev, Aleksandr S. Oreshonkov, Dmitry M. Tsymbarenko, Zakhar I. Popov, Dmitry G. Kvashnin, Andrey A . Vyshnevyy, Aleksey V. Arsenin, Davit A. Ghazaryan, Valentyn S. Volkov  
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Maria G. Burdanova, Yongjia Zheng, Maksim I. Paukov, Georgy A. Ermolaev, Gennady A. Komandin, Davit Ghazaryan, Sergey Novikov, Rong Xiang, Shohei Chiashi, Shigeo Maruyama, James Lloyd-Hughes, Alexey V. Arsenin, Valentin Volkov  
IEEE Photonics Journal 2022 182243

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**Twisted monolayer and bilayer graphene for vertical tunneling transistors**

Davit A. Ghazaryan, Abhishek Misra, Evgenii E. Vdovin,, Kenji Watanabe, Takashi Taniguchi, Sergei V. Morozov, Artem Mishchenko, Kostya S. Novoselov  
Applied Physics Letters 2021 183106

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**On the Role of Structural Imperfections of Graphene in Resonant Tunneling through Localized States in the h-BN Barrier of van-der-Waals Heterostructures**

M. V. Grigoriev, D. A. Ghazaryan, E. E. Vdovin, Yu. N. Khanin, S. V. Morozov, K. S. Novoselov  
Физика и техника полупроводников (Semiconductors) 2020 291-296

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Makars Šiškins, Ciaran Mullan, Seok-Kyun Son, Jun Yin, Kenji Watanabe, Takashi Taniguchi,

Davit Ghazaryan, Kostya S. Novoselov, Artem Mishchenko

Applied Physics Letters 2019 123104

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Shailla Afroj, Nazmul Karim, Zihao Wang, Sirui Tan, Pei He, Matthew Holwill, Davit Ghazaryan,

Anura Fernando, Kostya S. Novoselov

ACS Nano 2019 3847-3857

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S. Pezzini, S. Wiedmann, A. Mishchenko, M. Holwill, R. Gorbachev, D. Ghazaryan, K.S. Novoselov,

U. Zeitler

Physical Review B 2019 045440

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**Planar and van der Waals heterostructures for vertical tunnelling single electron transistors**

Gwangwoo Kim, Sung-Soo Kim, Jonghyuk Jeon, Seong In Yoon, Seokmo Hong, Young Jin Cho,

Abhishek Misra, Servet Ozdemir, Jun Yin, Davit Ghazaryan, Matthew Holwill, Artem Mishchenko,

Daria V. Andreeva, Yong-Jin Kim, Hu Young Jeong, A-Rang Jang, Hyun-Jong Chung, Andre K. Geim,

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Nature Communications 2019 230

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L. Avanesyan, A. Vasil'ev, M. Zhezhu, H. Parsamyan, G. Baghdasaryan, M. Sargsyan, D. A. Ghazaryan,

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**Terahertz Response of Liquid Crystalline GO and rGO Thin Films**

Lilit Avanesyan, Alexey Vasil'ev, Marina Zhezhu, Henrik Parsamyan, Gayane Baghdasaryan,

Maksim Sargsyan, Davit A. Ghazaryan, Hermine Gharagulyan

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